

REMARKS/ARGUMENTS

Claims 1-32 have been resubmitted. Claims 28-30 and 32 have been amended. Claims 33-38 have been canceled. New Claims 39-43 have been added.

The Examiner requested an affirmation of a provisional election with traverse between Group I (Claims 1-32) and Group II (Claims 33-38).

The Examiner rejected claims 28 and 31 under 35 U.S.C. Section 102(b) as being anticipated by Gemma et al. (US 4,605,452). The Examiner rejected claim 29 under 35 U.S.C. Section 103(a) as being unpatentable over Gemma et al. in view of DeLuca et al. (US 5,900,084).

Restriction

Applicant affirms the provisional election to proceed with Group I, claims 1-32 and has therefore cancelled claims 33-38.

Allowable Subject Matter

The Examiner stated that claims 1-27 are allowed.

The Examiner objected to claims 30 and 32, but stated that claims 30 and 32 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Gemma et al. (US 4,605,452)

Gemma et al. discloses single crystal articles having controlled secondary crystallographic orientation. Articles such as single crystal gas turbine blades may have the [110] crystal axis tangent to the blade surface just behind the leading edge of the airfoil.

The Examiner rejected claims 28 and 31 under 35 U.S.C. Section 102(b) as being anticipated by Gemma et al.

Claim 28 has been amended to recite the integral ring as comprising an inner rim, a plurality of airfoils integral with the inner rim, and an outer rim integral with the inner rim and with the plurality of airfoils.

Gemma et al. does not disclose an integral ring comprising an inner rim, an outer rim, and a plurality of airfoils integral with the inner rim and with the outer rim.

Accordingly, claim 28 is not anticipated by Gemma et al. Furthermore, Applicant submits that claim 28 as amended defines an invention which is unobvious over Gemma et al.

Gemma et al. discloses at column 5, lines 52-67: "... a blade 29 suited for *mounting* in a turbine disk ...," "... the engine disk 35, shown in Fig. 6, in which *the blade is mountable*." and "... a blade 29 has a *root portion for mounting* in the disk ...". In contrast, claim 28 as amended recites a plurality of airfoils formed as an integral ring. Thus, Gemma et al. teaches away from Applicant's invention.

Claim 31 depends directly from claim 28. Therefore, claim 31 is not anticipated by Gemma et al. for at least those reasons given above with respect to claim 28 as amended.

DeLuca et al. (US 5,900,084)

DeLuca et al. discloses a damage tolerant trimodal, or bimodal, material which comprises a multiple ' particle size and ' particle morphology having large, irregularly shaped ' particles (about 5 to 15 microns in size), interspersed in an ordered array of smaller cuboidal ' particles (about 0.3 to 0.7 microns), and (optionally) superfine, generally spheroidal, ' particles having a size of about 0.01 microns, all in a phase matrix.

The Examiner rejected claim 29 under 35 U.S.C. Section 103(a) as being unpatentable over Gemma et al. in view of DeLuca et al.

Claim 29 depends directly from claim 28. Claim 28 as amended recites the integral ring as comprising an inner rim, a plurality of airfoils integral with the inner rim, and an outer rim integral with the inner rim and with the plurality of airfoils.

Neither Gemma et al. nor DeLuca et al., taken singularly or in combination, teach or suggest an integral ring comprising an inner rim, an outer rim, and a plurality of airfoils integral with the inner rim and with the outer rim.

Furthermore, as noted hereinabove, Gemma et al. teaches away from Applicant's invention in disclosing individual blades each having a root portion for mounting in the disk (see, for example, column 5, lines 66-67 of Gemma et al.).

Thus, Applicant submits that claim 29 defines an invention which is unobvious over Gemma et al. in view of DeLuca et al.

Objected to Claims (Claims 30 and 32)

Claim 30 has been rewritten in independent form to include all of the limitations of the base claim. Claim 32 has been amended to depend directly from claim 30. Accordingly, claims 30 and 32 as amended are allowable.

New Claims

New claim 39 depends directly from claim 28. Therefore, applicant submits that claim 39 is patentable for at least those reasons given above with respect to claim 28 as amended.

Furthermore, claim 39 recites diffusion bonding an inner portion of the integral ring to an outer portion of a turbine disk.

None of the cited references, taken singularly or in combination, teaches or suggests the specific combination recited in claim 39.

New claim 40 recites, *inter alia*: a single crystal integral ring diffusion bonded to an outer portion of a turbine disk, wherein the single crystal integral ring comprises an inner rim, a plurality of airfoils integral with the inner rim, and an outer rim integral with the inner rim and with the plurality of airfoils.

None of the cited references, taken singularly or in combination, teaches or suggests the specific combination recited in claim 40

New claim 41 depends directly from claim 40. Therefore, claim 41 is patentable over the cited references for at least those reasons given above with respect to claim 40.

New claim 42 recites, *inter alia*: a single crystal integral ring including an inner rim, and a plurality of airfoils, each of the plurality of airfoils formed integrally with the inner rim, wherein each of the plurality of airfoils is grown from a separate seed crystal.

None of the cited references, taken singularly or in combination, teaches or suggests the specific combination recited in claim 42.

New claim 43 depends directly from claim 42. Therefore, claim 43 is patentable over the cited references for at least those reasons given above with respect to claim 42.

Support for Amendment to Claims

Support for amendment to claim 28 can be found, for example, in original claim 28, paragraph [0021] of the specification, and in Figures 1 and 4.

Support for amendment to claim 29 can be found, for example, at paragraph [0027] of the specification.

Support for amendment to claim 30 can be found, for example, in original claim 28.

Support for New Claims

Support for new claim 39 can be found, for example, at paragraphs [0021] and [0026] of the specification, and Figure 4.

Support for new claim 40 can be found, for example, at paragraphs [0021] and [0026] of the specification, and Figures 1 and 4.

Support for new claim 41 can be found, for example, in original claim 9.

Support for new claim 42 can be found, for example, at the last sentence of paragraph [0021] through lines 1-3 of paragraph [0022]; and at paragraph [0024].

Support for new claim 43 can be found, for example, at paragraphs [0021] and [0027] of the specification, and Figure 1.

The amended and new claims are fully supported by the specification and drawings as originally filed. No new matter has been added.

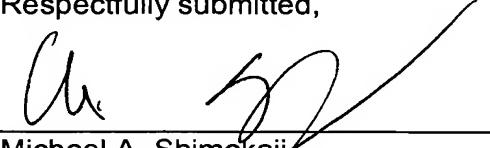
CONCLUSION

Reconsideration and withdrawal of the Office Action with respect to claims 28, 29, and 31 is requested.

In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

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